

Box 18 Buckner (J.H.)
REPORT

ON

OPHTHALMOLOGY.

A PAPER READ BEFORE THE

Ohio State Medical Society,

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✓ BY

Read by
E. W. Sunlap

J. H. BUCKNER, M. D.,

CINCINNATI, OHIO.

Surgeon Genl's Off
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J. H. BUCKNER, M. D.,

CINCINNATI, OHIO

MR. PRESIDENT AND GENTLEMEN:

It might be expected perhaps that I would enumerate in some detail the most valuable contributions of the year to the subject of this report. In doing this, however, I should only be rehearsing what has already been done by an abler pen than mine. The last volume of the R. L. O. H. reports furnishes a full and comprehensive review of the valuable work in this department for the year 1872. Neither is it my purpose to enter into an elaborate review of the progress and present condition of the science of ophthalmology, but I propose to submit what is mainly an abstract of notes taken during a recent visit to some of the principle eye clinics of Europe, trusting in the hope that however unworthy it may be in a purely scientific point of view to receive a place among the archives of Ophthalmology, it may not prove wholly uninteresting to this society. I wish also to remark by way of apology for its imperfections, that for reasons which it would be tedious to state, the preparation

of the paper was necessarily postponed until on ship board, and those who have experienced the rocking and pitching of the vessel upon the billows of Old Ocean, are well aware that the situation is not very favorable to literary and scientific labor.

The greatest progress in the science of ophthalmology may be said to date from the discovery of the ophthalmoscope and its description by Helmholtz in 1851. This was the beginning of the new era. From this time, diseases which had hitherto baffled the skill of the eye specialist were investigated under a new light, and diagnosticated by this simple instrument. A great variety of ophthalmoscopes have been constructed, all embodying, with some modifications of form, the original idea of Helmholtz. In this connection I wish to mention, briefly, some of the merits and demerits of the ophthalmoscopes which are most generally used at this day. I shall avoid as far as possible, a detailed description of these instruments.

The instrument of Prof. Edward Jaeger, which is extensively used in Germany, may be considered the best for the erect image, as on account of its shape it may be approached nearer to the eye of the patient with comfort to the observer than most other instruments; but for general use it is too cumbersome, and for the inverted image is inferior to other ophthalmoscopic instruments.

The Loring ophthalmoscope, the invention of Dr. Loring of New York, is regarded by eminent men of Europe and America as a decided improvement upon the instruments previously in use. The clinical assistant of Prof. Jaeger,—Dr. Schnabel,—prefers the Loring instrument to all others. Some of its advantages are its compactness and the facility with which the small ocular lenses can be adjusted so as to suit the refractory condition of the eye of the

patient, and that of the observer. An obstacle, however, to its universal employment is its cost; in this respect, a considerable reduction has been made upon its original price. It can be purchased in Vienna at half the cost at which it is sold in New York.

An instrument has been made recently by Mr. Hawksley, of London, which is intended as an improvement upon the Loring ophthalmoscope. There is a slight difference in the arrangement of the sets of lenses, and what is more important the metallic discs in which the small lenses are fitted are thinner than in the original Loring; the central hole is also not so deep. This makes a lighter instrument, and by diminishing the depth of the central aperture fewer rays from the fundus of the eye under observation are obstructed in their passage to the eye of the observer.

Dr. Loring has, however, in a measure anticipated these improvements, and his later instruments are similarly constructed but still not so light as those made by Hawksley.

Mr. John Couper, one of the surgeons to the R. L. O. Hospital, has endeavored to combine the advantages of Jaeger's ophthalmoscope for the erect image, with those of the Loring ophthalmoscope. His instrument is so constructed as to admit of a plain or concave mirror being used. The mirror swings in a metallic frame and can be placed at any angle. Upon its metallic back is a spring for holding the three separate discs in which are fitted the concave and convex lenses as in the Loring ophthalmoscope. He had not perfected the instrument to his satisfaction when I saw it last. If he can carry his idea to a successful issue, I have no doubt it will prove a further advance in the power of this most interesting and valuable means for diagnosis.

The Liebreich ophthalmoscope is probably more generally

used than any other. It combines simplicity of construction with cheapness and lightness. For the general practitioner it will perhaps continue to be the most popular.

Some difference of opinion exists upon the subject of the size of the mirror; the diameter of its central hole, and whether it should be of metal or glass, also whether the mirror should be perforated if of glass, or only have the covering removed from the center for the aperture.

Without discussing the question I will quote from Dr. Liebreich, who will be recognized as the best authority upon this subject. He says, "I propose to make the hole not smaller than two millimeters (.08"), and the mirror not smaller than three centimeters (1.2"), and to use in preference a thin silvered glass mirror, the center of which is *not perforated* but only deprived of its silver covering. The focus of the mirror may be eight or ten inches."

DISEASES OF THE EYE.

I propose to notice briefly the prevailing character of diseases of the eye, from my own observation at the clinics of London, Paris, Vienna, and Dublin, together with some peculiarities of treatment, and a few of the rare and interesting cases which I met with.

One of the most noticeable features of the ophthalmic hospital clinics in London to an American physician, is the small number of cases of granular conjunctivitis (Trachoma) as compared to the amount of the same disease met with at the principal eye clinics throughout the North-eastern, Middle and Western states of this country.

Dyphtheritic conjunctivitis is also a rare affection at the London clinics. Of other diseases of the conjunctiva catarrhal and strumous ophthalmia, (phlyctenular conjunctivitis) constitute the bulk of cases; next in frequency were

diseases of the cornea, keratitis, scrofulous keratitis (herpes of the cornea), and ulcerative corneitis. Next in order were diseases of the appendages of the eye, tinea ciliaris, and diseases of the lachrymal passages. Iritis and diseases of the retina and choroid were about equal in frequency.

At Paris, the only important difference in the character of cases which came under my notice was the greater frequency of granular conjunctivitis and purulent ophthalmia. dyptheritic conjunctivitis is also comparatively not an uncommon affection at the Paris clinics.

At Vienna, phlyctenular conjunctivitis, granular conjunctivitis and affections of the cornea, particularly herpes cornea, form the greater proportion of cases. Purulent ophthalmia and dyptheritic conjunctivitis is here met with in nearly the same proportion of cases as in Paris. Iritis, idiopathic and syphilitic, and diseases of the choroid and retina are found in the same proportion as in London. I did not find at the clinics in Vienna a greater amount of errors of refraction and accommodation than in London and Paris, although it is a well known fact that these affections prevail more extensively throughout Germany and among German-speaking people of other countries than elsewhere—a circumstance which I suppose to be due to the character of the German type which is undoubtedly more trying upon the eyes and, I believe, more productive of asthenopia and optical disorders than the Latin type. It is so universal a custom among Germans to wear glasses that I presume a large proportion of those requiring them go to the optician without consulting the eye-surgeon. The evil effects of this indiscriminate use of glasses has been fully set forth by Dr. Cohn of Breslau. "Among 10,000 children, he found 1,730 with defective vision, making 17.1 per cent, the average number, increasing with the

degree of demand upon the eyes at school. He found only 107 out of 1,004 near-sighted children wearing glasses; of these, only 8 had been ordered by a physician, the other 99 bought by the children on their own selection. Some had changed the glasses prescribed for them by a physician, for stronger ones. Of the 107, only 11 had glasses that were not injurious.* In this connection permit me to say that the propriety of applying to the eye surgeon for his selection of glasses instead of the optician, can not be too strongly insisted upon. *It is a recognized law by the best authorities upon ophthalmology.*

The prevailing type of diseases at Dublin are granular conjunctivitis and strumous ophthalmia, (phlyctenular ophthalmia.) Here we see those obstinate cases of pannus which so vex and worry the soul of the eye specialist. We have the same class of cases, chiefly among the Irish in our own country. In short, the eye clinic at Dublin was essentially the same in the general character of diseases as at the eye clinics of New York.

PECULIARITIES OF TREATMENT.

Dr. Wecker of Paris treats granular conjunctivitis and papillary trachoma with a strong solution of Goulards extract, about 50 per cent of the extract to the ounce of pure water. He applies this solution to the everted lids with a camel's-hair brush, and washes off the lids immediately with water. He claims that by this plan these obstinate affections can be cured much sooner than by the usual mode of treatment. Abrasions of the cornea do not with him contra-indicate the lead solution.

*The Eye in Health and Disease.—(Jeffries.)

Dr. Liebreich, for the same disease, uses chiefly a solution of nitrate of silver 10 grains to the ounce of water, brushed upon the everted lids.

Dr. Wecker treats chronic inflammation of the lachrymal sac by passing a bent silver tube into the nasal duct, and syringing through it solutions of soda, potash, and astringent washes, slowly withdrawing the tube at the same time, so that the fluid will reach the whole of the diseased surfaces.

Mr. Henry Powers, surgeon to the O. H. Charing Cross, London, eye surgeon to St. Bartholomews, treats purulent ophthalmia with a solution of permanganate of potash, three to five grains to an ounce of water, applied to the eyes three or four times a day.

STRABISMUS OPERATIONS.

Method of Prof. Arlt: The lids being separated by the speculum, the conjunctiva is seized with toothed forceps and freely divided across the insertion of the rectus muscle, the connective tissue is divided for a short distance along the muscle. The points of the forceps are now introduced closed under the conjunctiva, and when sufficiently far the points are opened and by a quick elevation of the hand the muscle is caught and with a pair of small blunt-pointed scissors is cut by successive snips at its insertion into the sclerotic. A small blunt hook is then used to ascertain if all the muscular fibres are completely separated at their attachment. The eye is then tried and if the division has been sufficient is simply bandaged; if the squint is not overcome he divides more freely the connective tissue. If on the other hand the division has been too free, which I have not witnessed, he unites the conjunctiva with a suture to the capsule of tenon, so as to bring it and the tendon of the muscle forwards.

Operation of Prof. Jaeger: An assistant takes up a fold of the conjunctiva over the insertion of the muscle; with another pair of forceps Prof. Jaeger takes up a similar fold of conjunctiva, just below the inferior margin of the muscle; a slit is then made in the conjunctiva between the two forceps, parallel to and over the border of the muscle, the tendon of the muscle is exposed, a blunt hook passed beneath it and its point brought out through the slit in the conjunctiva, and with blunt-pointed scissors the tendon is divided at its insertion.

Operation of Mr. Critchett: This is the one usually performed at the Moorfields Eye Hospital, London. The patient having been placed under chloroform and the stop speculum introduced, a fold of conjunctiva and subconjunctival tissue is seized with the forceps at the lower edge of the insertion of the rectus muscle; this fold is divided so as to expose through a small slit the tendon of the muscle. Through this slit a blunt hook is passed beneath the tendon, the latter is then made tense and the points of the scissors but slightly apart are introduced into the wound, one point passed along the hook beneath the tendon and the other in front of the tendon between it and the conjunctiva; the tendon is then divided by successive snips close to its insertion.

Either of the above operations is comparatively easy performance, although the latter seems to me to be the most elegant.

CATARACT OPERATIONS.

Without entering into a detailed description, I wish to briefly notice the methods for extraction of cataract as performed by some of the eminent eye surgeons of Europe.

At Moorfields Hospital, Graefe's operation or a slight modification of it is chiefly done by all of the surgeons in attendance with the exception of Mr. Streatfield, whose peculiar method I have reported in the *Phil. Med. & Sur. Rep.*, of Feb. 1st. The success of Graefe's operations as compared with the flap and other extraction operations as obtained from the books of this hospital, show a large per cent in favor of Graefe's method.

Mr. Henry Powers, at Charing Cross, O. H., operates by Graefe's method, but still performs the old flap-operation in favorable cases, and occasionally operates by reclin-ation.

Dr. Liebreich operates for extraction in every case by his new method. A detailed description of this operation has been published by Claxton & Co., of Philadelphia. Some of the noticeable features in the minor details of Liebreich's operations are, that he does not give chloroform, does not use a speculum, and does not require an assistant.

Dr. Wecker of Paris usually operates by a modified Graefe method, the details of which are given in Vol. VII., part 3, of the R. L. O. H. reports. He also performs the operation of removing the lens in its capsule in favorable cases as strongly advocated by Dr. Pagenstecher, of Weis Baden, and M. Sperino.

Prof. Arlt does Graefe's operation according to the method—as I was informed by his assistant, Dr. Satler—practiced by the distinguished Graefe during the latter years of his life. In this operation the puncture and counter-puncture is made further back than is ordinarily done by other operators. The section is completed in the sclerotic and a long conjunctival flap of about $1\frac{1}{2}$ to 2 lines is made. At the Moorfields Hospital the surgeons are not favorable to a long conjunctival flap.

Prof. Edward Jaeger, the colleague of Prof. Arlt, completes the section in the sclero corneal border and seldom leaves any conjunctival flap. It is only in the last year that he had become reconciled to Graefe's method, and he is still quite partial to the old flap-extraction operation, and speaks in very respectful terms of reclinatio.

At the Dublin O. H., Graefe's operation is done by Dr. Wilson, and Sir William Wilde. The latter is, however, still in favor of the old flap-operation in suitable cases. Dr. Wilson prefers to make the iridectomy previous to the operation of extraction. In cases of secondary capsular cataract, he makes an incision in the cornea, passes in a pair of iris forceps, seizes the capsule and withdraws it.

In opposition to the current opinion of most European operators I may state that Prof. Quaglino of Pavia, Italy is a strong advocate for the old operation of reclinatio. He says that "the most permanent and brilliant results of depression are obtained in the case of cataracts which are either soft or cheesy in consistency, in the fluid ones among middle aged people, and in those which occur in infancy. In hard senile cataracts it may be adopted, but exceptionally."

Without stopping to discuss the propriety of performing at this day the old flap or reclinatio operation for cataract, we will briefly notice the relative advantages of the Graefean method and Liebreich's operation.

Dr. Satler remarked to me that Prof. Arlt's loss in extraction of cataract by Graefe's method was about two per cent for the last year. Other eminent and skillful operators have not been nearly so fortunate. Graefe's best statistics showed a failure of 2.8 per cent. The semi-annual report

of Dr. Wecker's clinic for 1871 gives 3.15 per cent of failures by his modified Graefe's operation.

Judging from my own observation and data, which I am not at liberty to use, I am convinced that a fair and impartial report of all the principal eye-clinics of Europe would show an average loss for the last two years, nearly if not quite equal to ten per cent by Graefe's method. The great difficulty of arriving at any definite conclusion from published statistics lies in the fact that no uniform standard has been fixed for the degree of vision necessary to constitute a successful case. Dr. Wecker considers an acuity of vision of less than $\frac{1}{5}$ th, an incomplete result. While some other operators give as low as $\frac{1}{10}$ th. I should be in favor of making the uniform standard $\frac{5}{2}$ ths for successful cases, and any degree of acuity of vision below this to be classed as partially successful. The result of Liebreich's new operation for the extraction of cataract, in the hands of its originator has been, according to my observation, more successful than any other. Of fifteen cases of cataract which I saw Dr. Liebreich operate upon by his new method at Paris during the Christmas holidays, all were successful. I saw there, cases three, seven, and ten days after the operation, and at my last visit all were doing well and had good vision. Slight iritis ensued after the operation in two of these cases, but it was really subdued.

A few days before leaving London, Dr. Liebreich informed me that he had operated for extraction of cataract in 23 cases (by his new mode) at Paris, during the first week of last April, without a *single failure*. The perfectly clear, round, and natural pupil, and the absence of secondary capsular cataracts after Liebreich's operation would seem to

make it preferable to Graefe's method, but other operators have not had the success with it which it has been attended in the hands of Dr. L., prolapse of the iris and attachment to the corneal wound, (anterior synechia,) being a frequent occurrence. I may also state that among the many eminent eye surgeons with whom I conversed in Europe, but one or two were favorable to Liebreich's cataract operations.

INTERESTING CASES.

Moorfields Hospital, London. Congenital hypertrophy of the conjunctiva forming a ridge-like tumor upon which were long hairs growing. Operated upon by Mr. Hutchinson.

Displacement of the lachrymal gland: clinic of Dr. Liebreich.*

Cyst of the iris. Clinic of Prof. Arlt, Vienna, February 14, 1873. The patient, a young man, received a blow upon the eye with some sharp instrument, which penetrated the cornea and wounded the iris. The accident occurred some four or five years previous to his applying to the clinic. Four or five months since the cyst was first noticed, it now fills one fourth of the space occupied by the anterior chamber, and is of a delicate pearly shade. Prof. Arlt made an incision in the cornea and introduced the iris forceps, seized the cyst wall, drew it out and snipped it off with scissors. The eye did well, and after several weeks there was no return of the cyst.†

*Reported by me in Philadelphia Med. and Surg. Reporter, February 1.

†Dr. Rothmund quoted all the cases of cysts of the iris he could find recorded,—37. In twenty-eight there was a history of injury. Vol. VII., R. L. O. H. reports.

Prolapse of iris and its attachment to a fold of conjunctiva. Clinic of Prof. Arlt. P. T——, age twenty-four, had suffered with phlyctenular conjunctivitis. On the 3d of January he was attacked with acute blenorrhea, was treated abroad for three weeks, when he applied at the clinic. There was observed a large prolapse of the iris of the left eye, and only a small portion of the cornea remaining. A large fold of conjunctiva was drawn over the upper part of the cornea of the right eye, presenting the appearance of a superior Pterygium; the fold had become attached to the prolapsed iris. At one point, a probe could be passed under the fold close to the edge of the cornea, and could be moved upward freely beneath the retrotarsal fold. The greater part of the cornea was opaque. The anterior chamber was narrowed by the attachment, but of moderate depth. The pupil was pear-shaped, and fixed by the prolapse of iris. Operation: A ligature, double, was passed under the fold and cut so as to leave both ends free. One ligature was tied near the point of conjunctival attachment to the iris, and the other was tied near the cartilage. The following day the lids were much swollen and the cornea infiltrated with pus; consequently the thread was removed and the fold cut near its attachment. The eye could at once be freely turned downward, and upon the application of ice the swelling of the lids and the corneal infiltration disappeared, and no trace of the fold or its attachment remains.

Transplantation of the conjunctiva of the rabbit to the human eye after the removal of an epithelioma. Clinic of Mr. Henry Powers, F. R. C. S., Charing Cross O. H. This man was operated upon by Mr. Powers ten years ago for epithelioma

upon the lower lid of the left eye. Two years afterward it reappeared. Three operations have been performed upon it. Condition May 12, 1873: The lower lid destroyed and the inferior portion of the ocular conjunctiva invaded by the cancer. The diseased parts were removed with the knife; a white rabbit in fine condition, being ready, it was stunned by a blow upon the head and before life was extinct Mr. Powers dissected the conjunctiva in separate strips from the lids and eye balls, and transferred them as fast as removed to the surface wound upon the human eye. These strips were united to the human conjunctiva and to each other by a few fine sutures. On the third day after the operation the strips were found to have adhered at a few points inferiorly. but on the eye ball adhesion seemed to have been prevented by the effusion of pus, which had carried away from this part the patches of conjunctiva.

Mr. Powers informed me that he had several times successfully ingrafted a portion of the cornea of the rabbit to the human cornea but the new growth becoming opaque rendered the operation futile.